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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,355	09/17/2003	Masumi Suetsugu	2185-0698P	8070

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EXAMINER

ASHTON, ROSEMARY E

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,355

Applicant(s)

SUETSUGU ET AL.

Examiner

Rosemary E. Ashton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,9,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 3-8,10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/559,646.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Reissue Applications

1. The original patent, or a statement as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

Claim Rejections - 35 USC § 103

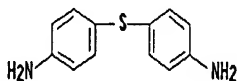
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,9,12,13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irving U.S. patent no. 4,439,517.

Irving teaches a negative resist composition comprising an epoxy resin, a benzenoid polyamine and a compound that liberates an acid on exposure to light (abstract, col. 2, lines 66-68 and col. 3, line 1). The benzenoid polyamine has the same formula (1) of applicant's claim 1 wherein X= CNH₂, R₁ and R₂= H and A is a sulfide (-S-) group as shown in col. 5, line 27 [bis(4-aminophenyl)sulphide] and is shown below. It meets the limitations of claims 1,2,12 and 13.

The teaching reference of Watanabe cited below show the epoxy resin is an alkali soluble resin as in claim 1.



Irving teaches the benzenoid polyamine is a crosslinking agent with the epoxy resin to cure the epoxy resin (col. 1, lines 24-35) wherein the photogenerated acid acts to speed up the reaction.

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Irving does not teach the composition has a separate basic compound or that the benzenoid polyamine acts as a basic compound as in claim 1, however, the diamine structure of bis(4-aminophenyl)sulphide is inherently a basic compound because it has two amino groups and amino groups are well known basic functional groups.

Thus, Irving teaches all the reagents in claim 1 wherein the bis(4-aminophenyl)sulphide compound acts as both the basic compound meeting formula (1) and the crosslinking agent.

As shown in example 6 the acid generator is N-(phenylsulfonyloxy)-1,8-naphthalimide which is a sulfonic ester of N-hydroxyimide as in applicant's claim 9.

Irving teaches using a bis(4-aminophenyl)methane as the crosslinking agent as shown in the Examples, however, it does not exemplify using the compound bis(4-aminophenyl)sulphide in a resist composition. It would have been obvious to one of ordinary skill in the art to use the compound bis(4-aminophenyl)sulphide in a resist composition with a reasonable expectation of obtaining a rapidly curing resist because in col. 5 (below) Irving teaches the compound is one of 10 compounds used as the crosslinking agent and that it is equivalent to bis(4-aminophenyl)methane in a resist composition.

Benzenoid polyamines suitable for use as the heat-curing agent (i) in component (B) include o-, m-, and p-phenylenediamine, bis(4-aminophenyl)methane, aniline-formaldehyde resins, bis(4-aminophenyl)ether, bis(4-aminophenyl)ketone, bis(4-aminophenyl)sulphide, bis(3-aminophenyl)sulphone, and bis(4-aminophenyl)sulphone.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. As cited in MPEP 2124, Watanabe et al. US patent application publication no. US2004/0146800 A1 is a teaching reference used to show an epoxy resin is an alkali soluble resin (section 149 and claim 11).

Allowable Subject Matter

5. Claims 3-8,10,11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. The following is a statement of reasons for the indication of allowable subject matter: The cited prior art does not teach the basic compound is a dipyrindyl compound as in claims 3-7, that the resin is a polyvinyl phenol as in claim 8, the amount of reagent as in claim 10 and that A has the limitations in claim 11. Watanabe teaches compounds having the formula in claim 11, however, the proviso in claim 1 excludes using these compounds in the resist.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosemary E. Ashton whose telephone number is 571-272-1326. The examiner works a part-time work schedule and can normally be reached M-F between 11:30 am – 5:30 pm.

If multiple attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached at 571-272-1526.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 4, 2004
rea



Rosemary E. Ashton
Primary Examiner
Art Unit 1752

ROSEMARY ASHTON
PRIMARY EXAMINER